

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference TS 6248 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/50792	International filing date (day/month/year) 05.11.2003	Priority date (day/month/year) 06.11.2002
International Patent Classification (IPC) or both national classification and IPC E21B33/138		
Applicant SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 01.06.2004	Date of completion of this report 24.01.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer van Berlo, A Telephone No. +31 70 340-3535 

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International application No. PCT/EP 03/50792

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-9 as originally filed

Claims, Numbers

1-11 as originally filed

Drawings, Sheets

1/1 received on 11.11.2004 with letter of 11.11.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	6,11
	No: Claims	1-5,7-10
Inventive step (IS)	Yes: Claims	
	No: Claims	1-11
Industrial applicability (IA)	Yes: Claims	1-11
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: US-A-5 291 949 (DOVAN HOAI T ET AL) 8 March 1994 (1994-03-08)

D2: US-A-4 147 211 (SANDIFORD BURTON B) 3 April 1979 (1979-04-03)

D3: US-A-4 903 767 (SHU PAUL ET AL) 27 February 1990 (1990-02-27)

D4: US-A-2 042 011 (LOOMIS ALBERT G) 26 May 1936 (1936-05-26)

D5: SCHLUMBERGER GLOSSARY, [Online] XP002273221

Retrieved from the Internet:

URL:[http://www.glossary.oilfield.slb.com/Display.cfm?Term=alkaline%20flooding](http://www.glossary.oilfield.slb.com/Display.cfm?Term=alkaline%20floodinghttp://www.glossary.oilfield.slb.com/Display.cfm?Term=alkaline%20flooding)
[retrieved on 2004-03-11]

D6: SCHLUMBERGER GLOSSARY, [Online] XP002273222

Retrieved from the Internet:

URL:[http://www.glossary.oilfield.slb.com/Display.cfm?Term=waterflood](http://www.glossary.oilfield.slb.com/Display.cfm?Term=waterfloodhttp://www.glossary.oilfield.slb.com/Display.cfm?Term=waterflood)
[retrieved on 2004-03-11]

1. INDEPENDENT CLAIM 1

1.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

1.2 The document D1, cited in the application, discloses (the references in parentheses applying to this document):

A method for selectively reducing the permeability of one or more relatively permeable geological layers of an oil-bearing formation (col. 1, line 18-20), to inhibit breakthrough of driving fluid from a driving fluid injection well via at least one of said layers into an oil production well (col. 8, line 52-57), which method comprises the steps of:

- injecting a driving fluid (water) comprising a first compound (caustic component) into the formation via the injection well;
- detecting the first compound in well fluid of the oil production well (col 10, line 11,12);
- upon detection, injecting a second compound (solution, col 10, line 17-18) into the formation via the oil production well, to react with the first compound in order to provide a flow restriction generated by a third compound (gel) which comprises a reaction

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product of the first and second compounds in at least one relatively permeable geological layer through which breakthrough of the driving fluid into the oil production well has occurred (col. 10, line 7-27).

1.3 It is noted that the caustic flood described in D1 has been interpreted according to D5 and D6, i.e. injection of an alkaline chemical during waterflooding. This should also be taken into account when interpreting the documents D2, D3 and D4.

2 INDEPENDENT CLAIM 8

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 8 is not new in the sense of Article 33(2) PCT.

2.2 The document D1, cited in the application, discloses in particular in column 10, line 7-27 (the references in parentheses applying to this document):

A kit of compounds, comprising a first compound (caustic component) for injection into a subsurface formation via an injection well which first compound can pass through the formation concurrently with a driving fluid (water), and a second compound (solution, col 10, line 17-18) for injection into the formation via a production well, which second compound can react with the first compound so as to form a reaction product (gel) in the formation which imposes a flow restriction.

replaced by
Article 34

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